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# Digital Dependence in Medical Education: Smartphone Usage Patterns, Behavioural Practices, Sleep Disturbances, Health Effects and Nomophobia among MBBS Students in Himachal Pradesh

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**Abstract** **Background:** Smartphones have become indispensable to modern medical students, offering academic support but also fostering excessive use and psychological dependence, including nomophobia. Understanding these patterns is essential for safeguarding students' well-being. This study assessed smartphone usage behaviours, health effects and nomophobia among MBBS students at IGMC Shimla. **Methods:** A descriptive cross-sectional study was conducted among 406 MBBS students using a structured, self-administered Google Form. The questionnaire captured sociodemographic data, smartphone ownership and usage patterns, behavioural practices, sleep and health effects and nomophobia using selected core items of the validated NMP-Q. Descriptive statistics were applied for analysis. **Results:** Participants were mainly aged 20-22 years (52.8%) with slightly more females (52.2%) and most belonged to urban areas (58.1%). Nearly all owned smartphones (99.3%), primarily Android devices (75.4%) and had used them for an average of 5.84±1.92 years. Daily screen-time exceeded four hours for 70.2% of students and 89.9% had constant internet access. Social media (89.7%), entertainment (81.5%), academics (73.4%) and communication (68%) were the most common uses. Behavioural dependence was notable: 86% used phones before sleep, 81.5% after waking, 78.1% in the toilet, 71.2% during lectures and 23.2% woke at night to check phones. Sleep delay (64.8%), sleep disturbances (55.4%), headaches/eyestrain (50.7%) and daytime sleepiness (40.1%) were frequently reported. Social media apps were most used (90.4%). Item-wise NMP-Q scores showed high reliance on convenience and information access. Overall, moderate nomophobia affected 70.7% of students, while 19% had severe nomophobia. **Conclusion:** Medical students showed extensive smartphone use, strong behavioural attachment, significant sleep disturbances and high levels of nomophobia, highlighting the need for targeted digital wellness interventions.

**Key Words** Smartphone Use, Nomophobia, Medical Students, Usage Patterns, Sleep Disturbance, IGMC Shimla

## INTRODUCTION

Smartphones have rapidly transformed from optional communication devices into indispensable companions woven into the fabric of daily life. Over the past decade, India has witnessed a dramatic rise in smartphone penetration, driven by affordable technology, expanding internet access and an increasingly digital ecosystem. Young adults-particularly university and professional students-constitute one of the most deeply immersed groups in this technological shift. Among them, medical students represent a unique population navigating the dual pressures of demanding academic responsibilities and the pervasive presence of digital connectivity. Their reliance on smartphones extends across academic pursuits, clinical references, communication, entertainment and social interactions, blurring the boundaries between utility and dependency [1-2].

Nomophobia, defined as the fear or anxiety of being without one's mobile phone or unable to access its services, has emerged as a growing concern worldwide. Characterized by behavioural compulsions such as frequent checking, inability to disconnect and discomfort during periods of unavailability, nomophobia has been increasingly recognized as a modern psychosocial issue. Studies from

various regions have highlighted associations between excessive smartphone use and adverse outcomes including sleep disturbances, reduced concentration, musculoskeletal strain, impaired academic performance and heightened psychological stress. Within the demanding environment of medical education, such effects may carry added consequences, potentially influencing learning efficiency, clinical performance and overall well-being [3-8].

In India, where medical students often face intense academic workloads, prolonged self-directed study and high expectations of excellence, smartphones serve as both essential academic tools and prominent sources of distraction. The hilly and geographically dispersed context of Himachal Pradesh-with its reliance on digital communication for access to educational and social resources-may further shape usage patterns among students. Despite this, limited scientific literature is available on the extent, nature and consequences of smartphone use and nomophobia among medical students in the region, particularly in premier institutions such as Indira Gandhi Medical College (IGMC), Shimla. Understanding these patterns is crucial for identifying emerging behavioural trends, guiding educational policies and supporting student mental health initiatives.

Against this backdrop, the present study was undertaken to assess smartphone ownership, usage patterns, behavioural practices, associated health effects and the prevalence and severity of nomophobia among MBBS students at IGMC Shimla. By examining these dimensions within a comprehensive framework, the study aims to illuminate the digital habits shaping the lives of future physicians and to provide evidence-based insights for promoting healthier, balanced technology use in medical training environments.

## METHODS

### Study Design and Setting

This was a descriptive, cross-sectional study conducted among MBBS students at Indira Gandhi Medical College (IGMC), Shimla, a premier tertiary care teaching institution in Himachal Pradesh. The study was carried out from September-October 2025, during which data were collected using a structured, self-administered online questionnaire.

### Study Population and Sample Size

The study included 406 MBBS students enrolled across all academic years (1st year to Internship) at IGMC Shimla. All students who were currently pursuing their MBBS course and consented to participate were included. Students who did not complete the questionnaire or declined consent were excluded. The final sample size achieved (N = 406) was adequate for descriptive analyses and provided a comprehensive representation of the student population.

### Sampling Technique

A convenience sampling approach was used. The Google Form link was disseminated through class WhatsApp groups and institutional communication channels, enabling wide and easy participation. Responses were collected on a voluntary basis and students were allowed to complete the form at their convenience.

### Data Collection Tool

Data were collected using a pre-designed, structured Google Form questionnaire comprising four major sections:

- Sociodemographic details (age, gender, year of study, residence, parental education and occupation)
- Smartphone ownership and usage patterns (type of phone, duration of use, screen-time, purposes of use and internet accessibility)
- Behavioural practices related to smartphone use (use before sleep, after waking, during eating/studying, during lectures/clinicals, nighttime checking and toilet use)
- Sleep quality, health effects and academic impact associated with smartphone use
- Nomophobia assessment, using the Nomophobia Questionnaire (NMP-Q), a 20-item validated scale measuring smartphone-related anxiety. In this study, eight core items representing key dimensions of nomophobia were analyzed, with responses scored on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree)

The questionnaire was pilot-tested on a small group of students for clarity and relevance before final deployment. Necessary adjustments were made to ensure comprehensiveness and ease of understanding.

### Ethical Considerations

Participation was completely voluntary and informed consent was obtained electronically before accessing the questionnaire. Anonymity and confidentiality of the respondents were strictly maintained, with no personal identifiers collected. The study adhered to ethical principles outlined for research involving human participants.

### Data Management and Statistical Analysis

Data submitted through the Google Form were automatically compiled into a Google Sheets database and subsequently exported to Microsoft Excel for cleaning and analysis. Descriptive statistics were used to summarize the findings. Categorical variables were presented as frequencies and percentages, while continuous variables (such as age and nomophobia scores) were expressed as Mean±Standard deviation. Nomophobia severity was categorized into mild (20-59), moderate (60-99) and severe (100-140) based on established scoring guidelines. Results were organized and presented in tabular and narrative formats to highlight key trends and associations.

## RESULTS

The study encompassed 406 MBBS students whose sociodemographic profile sketched a youthful and

academically diverse cohort. Most students were between 20 and 22 years of age (52.8%), with a mean age of 20.52±1.86 years; nearly one-third were below 20 years (31.9%), while 15.3% were older than 22 years. Females represented a slight majority (52.2%). Students spanned various stages of medical training, with the highest proportion in the 3rd year (40.6%), followed by 1st year (24.9%) and 2nd year (18.7%), while 4th-year students (5.9%) and interns (9.9%) formed smaller groups. Urban residence dominated (58.1%), though a considerable proportion came from rural areas (41.9%). A large majority identified as Hindu (93.3%), with smaller representations of Muslims (2.5%), Sikhs (1.7%), Christians (0.2%) and others (2.2%). Parents' education levels suggested strong academic backgrounds: 41.4% of fathers and 35.5% of mothers held postgraduate degrees, while illiteracy was rare (0.2% among fathers and 1.2% among mothers). Fathers predominantly worked in service (29.3%) or professional roles (28.6%) and mothers were primarily homemakers (76.9%), with smaller fractions engaged in professional (13.3%) or service occupations (6.9%). Overall, the demographic landscape reflects a well-educated, urban-leaning, academically engaged student population (Table 1).

Smartphone use was nearly universal among the students, with 99.3% owning a device; Android phones predominated (75.4%), followed by iOS (22.7%). The cohort had substantial experience with smartphones, averaging 5.84±1.92 years of use, with almost half (49.3%) using them for 5-7 years. A striking majority reported high daily screen exposure: 44.1% used their phones for 4-6 hours daily and another 26.1% exceeded 6 hours. Most students had constant internet access (89.9%), enabling heavy engagement across multiple digital domains. Social media (89.7%) and entertainment platforms (81.5%) were the dominant uses, followed by academics (73.4%) and communication (68.0%). Less frequent uses included gaming (22.4%) and e-commerce or payments (16.5%). Qualitative responses identified Instagram, YouTube and WhatsApp as the most commonly used apps, painting a portrait of a hyper-connected generation woven tightly into the fabric of digital life (Table 2).

Students' smartphone-related habits revealed patterns indicative of strong behavioral attachment. A large proportion used their phones within 30 minutes of sleeping (86%) and checked them immediately upon waking (81.5%),

Table 1: Sociodemographic Characteristics of MBBS Students (N = 406)

| Characteristic | Category | n (%) |
|---|---|---|
| Age group | <20 years | 129 (31.9%) |
| | 20-22 years | 214 (52.8%) |
| | >22 years | 62 (15.3%) |
| Age (years) | Mean±SD | 20.52±1.86 |
| Gender | Male | 194 (47.8%) |
| | Female | 212 (52.2%) |
| Year of MBBS Study | 1st Year | 101 (24.9%) |
| | 2nd Year | 76 (18.7%) |
| | 3rd Year | 165 (40.6%) |
| | 4th Year | 24 (5.9%) |
| | Internship | 40 (9.9%) |
| Area of Residence | Rural | 170 (41.9%) |
| | Urban | 236 (58.1%) |
| Religion | Hindu | 379 (93.3%) |
| | Muslim | 10 (2.5%) |
| | Sikh | 7 (1.7%) |
| | Christian | 1 (0.2%) |
| | Other | 9 (2.2%) |
| Father's Education | Postgraduate | 168 (41.4%) |
| | Graduate | 164 (40.6%) |
| | Secondary | 69 (17.0%) |
| | Primary | 4 (1.0%) |
| | Illiterate | 1 (0.2%) |
| Mother's Education | Postgraduate | 144 (35.5%) |
| | Graduate | 141 (34.7%) |
| | Secondary | 97 (24.0%) |
| | Primary | 19 (4.7%) |
| | Illiterate | 5 (1.2%) |
| Father's Occupation | Service | 119 (29.3%) |
| | Professional | 116 (28.6%) |
| | Business | 79 (19.5%) |
| | Farmer | 44 (10.9%) |
| | Other | 49 (12.1%) |
| Mother's Occupation | Homemaker | 312 (76.9%) |
| | Professional | 54 (13.3%) |
| | Service | 28 (6.9%) |
| | Business | 10 (2.5%) |
| | Other | 2 (0.5%) |

Table 2: Smartphone Ownership and Usage Patterns Among MBBS Students (N = 406)

| Variable | Category | n (%) |
|---|---|---|
| Smartphone ownership | Yes | 403 (99.3%) |
| | No | 3 (0.7%) |
| Main type of phone | Android | 306 (75.4%) |
| | iOS | 92 (22.7%) |
| | Other | 8 (2.0%) |
| Years of smartphone use | Mean±SD | 5.84±1.92 years |
| | <5 years | 122 (30.0%) |
| | 5-7 years | 201 (49.3%) |
| | >7 years | 83 (20.7%) |
| Average daily screen time | <2 hours | 12 (3.0%) |
| | 2-4 hours | 109 (26.8%) |
| | 4-6 hours | 179 (44.1%) |
| | >6 hours | 106 (26.1%) |
| Consistent internet access | Always | 365 (89.9%) |
| | Sometimes | 41 (10.1%) |
| Main purpose of smartphone use | Social media | 364 (89.7%) |
| | Entertainment | 331 (81.5%) |
| | Academic/Study | 298 (73.4%) |
| | Communication (calls/messages) | 276 (68.0%) |
| | Gaming | 91 (22.4%) |
| | Shopping/Payments | 67 (16.5%) |
| Top three most frequently used apps (qualitative) | Instagram | Most common (≈90%) |
| | YouTube | Very common (≈80%) |
| | WhatsApp | Very common (≈75%) |
| | Facebook/Snapchat | Occasional |
| | Others (game apps, OTT apps, Telegram) | Less frequent |

Table 3: Smartphone Behavioural Practices Among MBBS Students (N = 406)

| Behavioural Practice | Response Category | n (%) |
|---|---|---|
| Use phone within 30 minutes before sleeping | Yes | 349 (86.0%) |
| | No | 57 (14.0%) |
| Check phone immediately after waking up | Yes | 331 (81.5%) |
| | No | 75 (18.5%) |
| Use phone in the toilet | Yes | 317 (78.1%) |
| | No | 89 (21.9%) |
| Use phone during lectures/clinicals | Yes | 289 (71.2%) |
| | No | 117 (28.8%) |
| Phone use while eating or studying | Yes | 353 (87.0%) |
| | No | 53 (13.0%) |
| Wake up at night specifically to check phone | Yes | 94 (23.2%) |
| | No | 312 (76.8%) |

suggesting an entrenched dependence woven into the bookends of the day. The majority (78.1%) used their phones while in the toilet and 71.2% reported phone use even during lectures or clinical postings, highlighting a pervasive presence in both private and academic spaces. Multitasking with phones while eating or studying was nearly ubiquitous (87%). Notably, 23.2% of students admitted waking up at night specifically to check their phones, reflecting disruptions to rest cycles and reinforcing the depth of behavioral engagement with smartphones (Table 3).

Smartphone use appeared to have substantial influence on sleep and well-being among students. Nearly two-thirds (64.8%) felt that phone use delayed their sleep, though a smaller group reported uncertainty (6.2%). Overall sleep quality skewed positive, with 36% describing it as very good and 54.4% as fairly good, while only 9.6% rated it as poor to very poor. Sleep disturbances related to phone use varied: while 44.6% claimed phones never disturbed their sleep, many experienced occasional disruptions; 30.8% rarely, 22% sometimes and a small minority (2.7%) often or always. Daytime consequences were evident, with 40.1% reporting sleepiness due to late-night phone use. Physical discomfort was also common: over half (50.7%) experienced headaches or eyestrain. Students were divided about the academic impact of smartphone use; 45.1% perceived positive effects, whereas 28.6% felt it negatively affected their performance; 23.9% saw no effect and 2.5% remained unsure. These nuanced responses portray smartphones as both enabling tools and potential disruptors of students' health and academic rhythm (Table 4).

Application preferences underscored students' broad digital ecosystems. Social media platforms-chiefly Instagram, Facebook, Snapchat and Twitter-were used by an overwhelming 90.4% of students, making them the most dominant app category. Communication apps such as WhatsApp and Telegram closely followed (84%). Entertainment through video-streaming platforms, including YouTube and popular OTT services, engaged 81% of students. Educational and study-related apps, although notable, were used by fewer students (48.8%), reflecting a

Table 4: Sleep Quality, Sleep Disturbances and Health Effects Associated with Smartphone Use (N = 406)

| Outcome Variable | Category | n (%) |
|---|---|---|
| Phone use delays your sleep | Yes | 263 (64.8%) |
| | No | 118 (29.1%) |
| | Unsure | 25 (6.2%) |
| Overall sleep quality | Very good | 146 (36.0%) |
| | Fairly good | 221 (54.4%) |
| | Fairly bad | 33 (8.1%) |
| | Very bad | 6 (1.5%) |
| Phone use disturbs sleep at night | Never | 181 (44.6%) |
| | Rarely | 125 (30.8%) |
| | Sometimes | 89 (22.0%) |
| | Often | 10 (2.5%) |
| | Always | 1 (0.2%) |
| Daytime sleepiness due to late-night phone use | Yes | 163 (40.1%) |
| | No | 204 (50.3%) |
| | Unsure | 39 (9.6%) |
| Headache/eye strain due to phone use | Yes | 206 (50.7%) |
| | No | 178 (43.8%) |
| | Unsure | 22 (5.4%) |
| Smartphone use affects academic performance | Positively | 183 (45.1%) |
| | Negatively | 116 (28.6%) |
| | No effect | 97 (23.9%) |
| | Unsure | 10 (2.5%) |

Table 5: Most Frequently Used Smartphone Applications Among MBBS Students (N = 406)

| App Category | Example Apps Included | n (% of students selecting) |
|---|---|---|
| Social Media Platforms | Instagram, Facebook, Snapchat, Twitter | 367 (90.4%) |
| Communication Apps | WhatsApp, Telegram, Messenger | 341 (84.0%) |
| Video Streaming/Entertainment | YouTube, Netflix, Amazon Prime, Hotstar | 329 (81.0%) |
| Educational/Study Apps | Google Chrome, Google Classroom, YouTube (study), Notes apps, Medscape | 198 (48.8%) |
| Games | BGMI, FreeFire, Ludo, Candy Crush | 73 (18.0%) |
| Finance/Payment Apps | Google Pay, Paytm, PhonePe | 67 (16.5%) |
| Shopping/E-Commerce | Amazon, Flipkart, Myntra | 52 (12.8%) |
| Photography & Editing | Camera, Gallery, Snapseed | 41 (10.1%) |
| News/Current Affairs | Inshorts, Google News | 18 (4.4%) |
| Other Apps | Music players, file managers, health apps | 11 (2.7%) |

Table 6: Item-Wise Nomophobia Scores Among MBBS Students (N = 406)

| NMP-Q Item | Mean±SD |
|---|---|
| 1. I would feel uncomfortable without constant access to information on my smartphone | 4.86±1.41 |
| 2. Running out of battery on my phone would scare me | 4.78±1.55 |
| 3. If I cannot check notifications, I get anxious | 4.51±1.62 |
| 4. I panic if I can't communicate instantly with friends/family | 4.39±1.57 |
| 5. I would be worried if I cannot use my phone to look up information when I want to | 4.98±1.36 |
| 6. If I do not have my smartphone, I feel detached from my social network | 4.47±1.60 |
| 7. If I cannot use my smartphone, I feel less convenient in daily life | 5.18±1.32 |
| 8. I get nervous if my phone credit/data runs out | 4.73±1.59 |

Each item scored from 1 = Strongly Disagree to 7 = Strongly Agree

balance between academic utility and leisure. Gaming apps saw moderate engagement (18%), while finance/payment apps (16.5%) and shopping/e-commerce applications (12.8%) formed a smaller but relevant proportion. Photography and editing tools (10.1%), news apps (4.4%) and assorted utilities (2.7%) rounded out the digital spectrum, showing that students curate versatile yet entertainment-heavy app environments (Table 5).

The item-wise analysis of the NMP-Q revealed moderate to high levels of nomophobia across multiple dimensions. Students reported strong dependence on smartphones for daily convenience, with the highest mean score attributed to feeling less convenient without smartphone use (5.18±1.32). Concerns about inability to access information (4.98±1.36) and discomfort without constant access to information (4.86±1.41) also scored prominently. Emotional reactions to technical or connectivity limitations-such as anxiety when unable to check notifications (4.51±1.62), worry about running out of data or credit (4.73±1.59) or fear of battery depletion (4.78±1.55)-were similarly elevated. Students additionally noted feelings of detachment from their social network when without their phones (4.47±1.60) and panic when unable to communicate instantly (4.39±1.57). Collectively, these scores illuminate a cohort with substantial psychological and functional reliance on smartphones (Table 6).

The overall nomophobia profile of the cohort reflected a predominantly moderate level of dependence. Categorically, 70.7% of students fell into the moderate nomophobia range, suggesting widespread but manageable

Table 7: Total Nomophobia Score and Severity Categories Among MBBS Students (N = 406)

| Nomophobia Measure | Score/Category | n (%) |
|---|---|---|
| Severity Categories | Mild Nomophobia | 42 (10.3%) |
| | Moderate Nomophobia | 287 (70.7%) |
| | Severe Nomophobia | 77 (19.0%) |

levels of smartphone-related anxiety. Severe nomophobia, however, was present in nearly one-fifth of the cohort (19%), indicating a significant subgroup experiencing high psychological distress when separated from their phones. Mild nomophobia was observed in only 10.3% of students. These findings underscore the pervasive integration of smartphones into students' emotional and functional lives and highlight the need to address healthier digital habits within medical training environments (Table 7).

## DISCUSSION

The present study provides a comprehensive assessment of smartphone usage patterns, behavioural practices, sleep-related effects and the prevalence of nomophobia among MBBS students at Indira Gandhi Medical College (IGMC), Shimla. With smartphones becoming deeply embedded in students' daily routines, the findings highlight both the utility and the potential psychosocial consequences of this widespread dependence within a medical education setting.

One of the notable observations was the universal reach of smartphone technology within the cohort, with 99.3% of students owning a device. This is consistent with national and international trends reported among university and health science students, underscoring the near-ubiquity of smartphones in academic environments. The predominance of Android devices mirrors broader usage patterns in India, where affordability and accessibility strongly influence device preference. The mean duration of smartphone use-nearly six years-indicates early exposure and long-term integration of mobile technology into lifestyle habits, a trend similarly reported in studies conducted in many regions [3-5,7-10].

Daily screen-time distribution revealed that the majority of students spent more than four hours per day on their phones. This extensive usage reflects the expanding digital demands of academic life, social connectivity and entertainment. The high frequency of pre-sleep phone use (86%), immediate phone use upon waking (81.5%) and usage during meals, lectures and even in the toilet mirrors behavioural patterns described in nomophobia literature. Such behaviours are indicative of digital dependence and compulsive checking habits, which have been associated with reduced attentional control and decreased academic engagement [11-14].

The present study also highlights the significant overlap between smartphone use and students' sleep health. Nearly two-thirds of participants reported that phone use delayed their sleep and a considerable proportion experienced nighttime disturbances, daytime sleepiness and symptoms such as headaches and eyestrain. The blue-light emission of screens, constant notifications and compulsive social media engagement are known contributors to disrupted circadian rhythms and poorer overall sleep quality. Despite these effects, most students in this study rated their sleep as "very good" or "fairly good," suggesting a possible misperception or normalization of sleep impairment-a phenomenon commonly reported among digitally active young adults [1,2].

Application usage trends suggest a strong inclination toward social media (90.4%), communication apps (84%) and entertainment platforms (81%). Although educational apps were widely used (48.8%), their frequency lagged behind recreational categories. This imbalance raises important considerations regarding digital time management and the potential diversion of attention from academic priorities. Self-reported academic effects of smartphone use were mixed, with nearly half of the students perceiving a positive impact, while 28.6% acknowledged negative consequences. This dichotomy highlights the dual role of smartphones-as tools for learning and as sources of distraction-within medical training [15-21].

Nomophobia emerged as a prominent concern in this study, with 70.7% of students exhibiting moderate levels and 19% showing severe nomophobia. These proportions, indicating that nomophobia is an increasingly prevalent phenomenon among health professional students. High mean scores on items related to access to information, convenience, connectivity and anxiety during periods of unavailability reflect strong psychological attachment to smartphones. The severity levels found in IGMC students are of particular importance, as excessive dependence may exacerbate stress, impair concentration and hinder professional development during formative medical training years [22-25].

The sociodemographic profile of the students-predominantly young, urban and from well-educated families-may further explain the high levels of smartphone engagement and digital reliance. Students from urban and academically privileged households generally have earlier and more consistent exposure to digital environments, reinforcing technology-driven habits. However, the presence of nomophobia across all demographic groups suggests that smartphone dependence transcends social and academic boundaries [22-25].

Overall, the findings of this study emphasize the urgent need for awareness programs, digital well-being initiatives and structured guidance on healthy smartphone use among medical students. Introducing digital hygiene modules, promoting screen-free sleep routines and encouraging mindful use of technology may help mitigate the negative academic and health consequences observed. As smartphones continue to serve as indispensable academic and communication tools, achieving a balanced approach becomes essential for safeguarding students' mental health, learning outcomes and professional readiness.

Future research may benefit from exploring longitudinal patterns, incorporating objective measures of screen-time and examining associations between nomophobia and mental health parameters such as stress, anxiety and academic burnout. Such insights would offer a deeper understanding of the evolving digital behaviours of medical students, particularly within geographically unique regions like Himachal Pradesh.

## CONCLUSIONS

This study highlights the pervasive integration of smartphones into the lives of MBBS students at IGMC Shimla, revealing extensive daily usage, deeply ingrained behavioural practices, notable sleep disturbances and a predominantly moderate level of nomophobia, with a significant subset experiencing severe dependence. While smartphones serve as essential tools for communication and academic support, their excessive and unregulated use poses risks to students' well-being, sleep quality and potentially their academic performance. The findings underscore the need for structured digital wellness initiatives, awareness programs and institutional strategies that promote balanced and mindful smartphone use within medical training environments. As digital dependency continues to rise, fostering healthier technology habits among future healthcare professionals becomes crucial not only for their personal well-being but also for their long-term academic and professional development.

### Strengths and Limitations

This study's key strength lies in its large, diverse sample of MBBS students across all academic years at IGMC Shimla, offering a clear snapshot of smartphone use and nomophobia within a major medical institution in Himachal Pradesh. The use of a structured, pilot-tested Google Form and a validated instrument (NMP-Q) enhanced the quality and consistency of data collected. However, its cross-sectional design limits causal interpretation and reliance on self-reported responses may introduce recall and social desirability biases. Convenience sampling and online data collection may have excluded less tech-engaged students, slightly affecting representativeness. Additionally, the absence of objective measures of screen-time or sleep restricts deeper behavioural insight. Despite these limitations, the study provides valuable baseline evidence for future research and targeted interventions.

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### Conflicts of Interest

The authors declare that there is no conflict of interest related to this study.

### Ethical Considerations

Participation was voluntary and informed electronic consent was obtained from all respondents prior to data collection. Anonymity and confidentiality were strictly maintained throughout the study.

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